

CLAIMS

What is claimed is:

1. A knee joint prosthesis for replacing the articulating knee portion of a femur and a tibia, said knee joint prosthesis comprising:

a femoral component having a first femoral bearing surface and a second femoral bearing surface;

a tibial component having a tibial bearing surface;

a bearing member having a first bearing surface operable to articulate with said first femoral bearing surface, a second bearing surface operable to articulate with said second femoral bearing surface; and

a linkage mechanism movably attaching the femoral component to the tibial component, the linkage mechanism operable to control movement of said femoral component relative to said tibial component.

2. The knee joint prosthesis of claim 1 wherein said linkage mechanism is further comprised of a linkage having a first end coupled to said femoral component and a second end coupled to said tibial component to allow relative translation of said femoral component in the anterior direction and relative rotation during extension of said knee joint and relative translation of said femoral component in the posterior direction and relative rotation during flexion of said knee joint.

3. The knee joint prosthesis of claim 1 wherein said bearing member includes a third bearing surface operable to articulate with said tibial bearing surface

4. The knee joint of claim 3 wherein said bearing member is operable to translate in the anterior direction during extension of said knee joint and translate in the posterior direction during flexion of said knee joint.

5. The knee joint prosthesis of claim 4 wherein said second end of said linkage is connected proximal to a posterior side of said tibial component.

6. The knee joint prosthesis of claim 5 wherein said second end of said linkage is located between said first and said second femoral bearing surfaces.

7. The knee joint prosthesis of claim 6 wherein said first end of said linkage is rotatably coupled to the femoral component to allow rotation around an axis defined in the lateral and medial directions.

8. The knee joint prosthesis of claim 4 wherein said linkage is formed to be either flexible, resilient or rigid.

9. The knee joint prosthesis of claim 1 wherein said knee joint prosthesis includes a guide post extending from said tibial component, said guide post operable to control movement of said bearing member.

10. The knee joint prosthesis of claim 9 wherein said guide post is removable.

11. The knee joint prosthesis of claim 9 wherein removing said guide post changes the control of the movement of the bearing member.

12. The knee joint prosthesis of claim 1 where knee joint prosthesis is adapted to be used as either an anterior stabilized, a posterior stabilized or a fully constrained knee joint prosthesis.

13. A knee joint prosthesis for replacing the articulating knee portion of a femur and a tibia, said knee joint prosthesis comprising:

a femoral component having a first femoral bearing surface;

a tibial component having a tibial bearing surface;

a bearing member having a first bearing surface operable to articulate with said first femoral bearing surface; and

a linkage mechanism movably attaching the femoral component to the tibial component, the linkage mechanism operable to control movement of said femoral component relative to said tibial component.

14. The knee joint prosthesis of claim 13 wherein said linkage mechanism is further comprised of a linkage having a first end coupled to said femoral component and a second end coupled to said tibial component to allow relative translation of said femoral component in the anterior direction and relative rotation during extension of said knee joint and relative translation of said femoral component in the posterior direction and relative rotation during flexion of said knee joint.

15. The knee joint prosthesis of claim 13 wherein said bearing member includes a second bearing surface operable to articulate with said tibial bearing surface

16. The knee joint of claim 14 wherein said bearing member is operable to translate in the anterior direction during extension of said knee joint and translate in the posterior direction during flexion of said knee joint.

17. The knee joint prosthesis of claim 13 wherein said linkage mechanism includes a linkage having a first end connected proximal to the posterior of said tibial component.

18. The knee joint prosthesis of claim 17 wherein a second end of said linkage is rotatably coupled to the femoral component to allow rotation around an axis defined in the lateral and medial directions.

19. The knee joint prosthesis of claim 17 wherein said linkage is formed to be either flexible, resilient or rigid.

20. The knee joint prosthesis of claim 13 wherein said knee joint prosthesis includes a guide post extending from said tibial component, said guide post operable to control movement of said bearing member.

21. The knee joint prosthesis of claim 20 wherein said guide post is removable.

22. The knee joint prosthesis of claim 20 wherein removing said guide post changes the control of the movement of the bearing member.

23. A method of replacing the articulating knee portion of a femur and a tibia comprising:

- resecting an end portion of the tibia;
- resecting an end portion of the femur;
- attaching a tibial prosthetic component corresponding to the resected end portion of the tibia, the tibial prosthetic component having a bearing surface;
- attaching a femoral prosthetic component corresponding to the resected end portion of the femur, the femoral prosthetic component having a bearing surface;
- installing a bearing member between the tibial prosthetic component and the femoral prosthetic component, the bearing member having a first surface operable to articulate with the femoral bearing surface and a second bearing surface operable to articulate with the tibial bearing surface; and
- connecting the tibial prosthetic component to the femoral prosthetic component with a linkage, the linkage operable to allow the femoral prosthetic component to translate in the posterior direction and rotate during flexion of the joint.

24. The method of replacing the articulating knee portion of a femur and a tibia of claim 23 wherein connecting the tibial prosthetic component to the femoral prosthetic component with the linkage further includes the step of inserting a first end of the linkage into a guide located in the tibial prosthetic component, inserting the second end of the linkage into a guide located in the femoral prosthetic component, installing a first stop on the first end of the linkage to prevent the first end of the linkage from passing through the guide on the tibial prosthetic component and installing a second stop on the second end of the linkage to prevent the second end of the linkage from passing through the guide on the femoral prosthetic component.

25. The method replacing the articulating knee portion of a femur and a tibia of claim 23 wherein connecting the tibial prosthetic component to the femoral prosthetic component with the linkage further includes inserting the linkage into a captured slot in the tibial component, translating the linkage until a first end portion of the linkage engages the captured slot, connecting a second end portion of the linkage to the femoral prosthetic component.